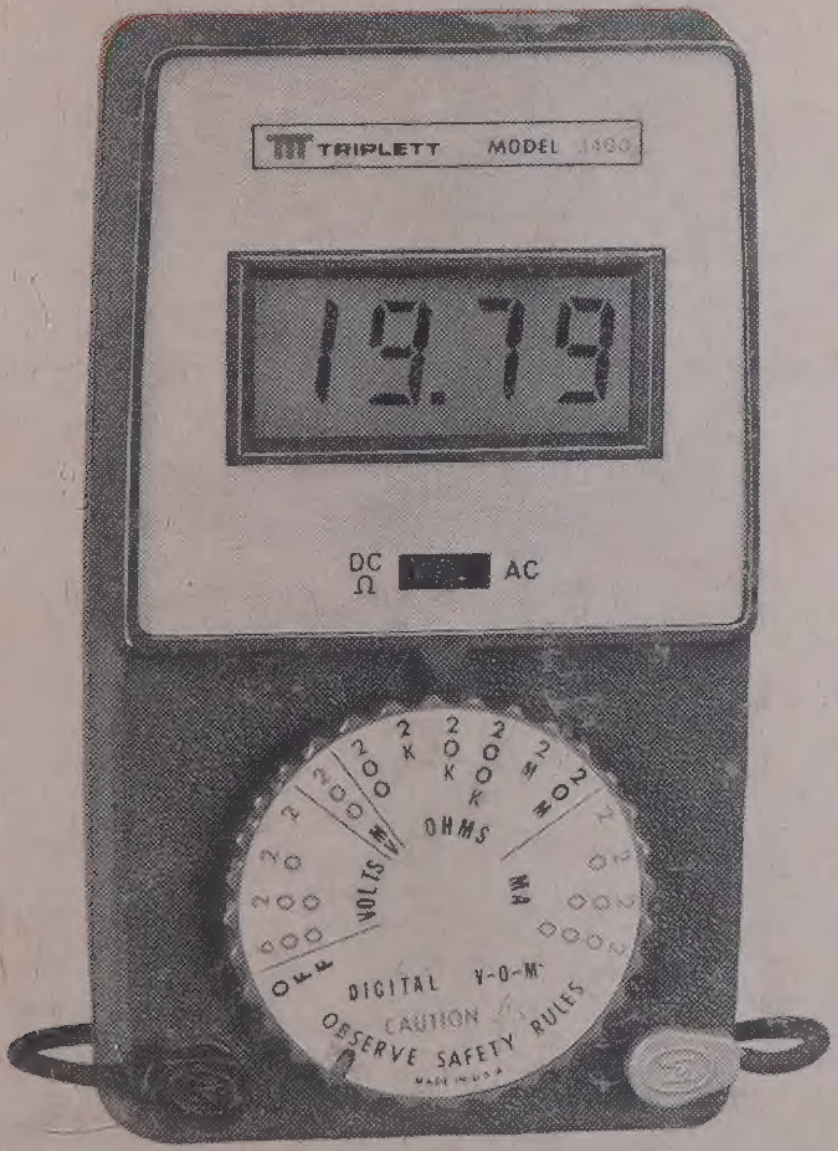

MODEL 3400 DIGITAL V-O-M

TEST PRODUCTS

TRIPLETT

INSTRUCTION MANUAL

MP MASTER
MA26089

INSTRUCTION MANUAL
MODEL 3400
3½ DIGIT V-O-M

TRIPLETT®

Triplett Corporation
286 Harmon Road
Bluffton, Ohio 45817

SAFETY RULES

Warning

This tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when lack of caution or poor safety practices are used.

Read The Manual

Read this Instruction Manual carefully and completely.

Voltages and currents within the capability of this test equipment can be hazardous. Follow the instructions in this manual for every measurement. Read and understand the general instructions before attempting to use this tester. Do not exceed the limits of the tester.

Safety Check

Double check the switch setting, and lead connections before making measurements. Are you following all of the instructions?

Disconnect the tester or turn off the power before changing switch positions.

Do not connect to circuits with voltage present when switch is in any ohms or current position.

When replacing fuses use only specified type fuses and insert in correct fuse holder.

Don't Touch

Don't touch exposed wiring, connections or other "live" parts of an electrical circuit. If in doubt, check the circuit first for voltage before touching it.

Turn off the power to a circuit before connecting test probes to it. Be sure there is no voltage present before you touch the circuit.

Do not use cracked or broken test leads.

High Voltage Is Dangerous

Always start with the power off. Be sure there is no voltage present before making connections to the circuit.

Don't touch the tester, its test leads, or any part of the circuit while it is on.

Before disconnecting the tester, turn the circuit off and wait for the meter to return to "zero."

Distribution Circuits Pack A Punch

In high energy circuits such as distribution transformers and bus bars, dangerous arcs of explosive nature can occur if the circuit is shorted. If the tester is connected across a high energy circuit when set to a low resistance range, a current range, or any other low impedance range, the circuit is virtually shorted.

Special equipment designed for use with these circuits is available. Contact a qualified person for assistance before attempting to make measurements on any high energy circuit.

SAFETY IS NO ACCIDENT

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3½ Digit V-O-M

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INTRODUCTION

The Triplett Model 3400 is a compact 3½ Digit Digital V-O-M, featuring a ½" Liquid Crystal Display (LCD), long battery life and simple operation.

The Model 3400 has been designed with the user in mind. In the Triplett tradition of easy to use instruments, the Model 3400 can be operated with only one hand because of its unique one knob control to select 15 different ranges of volts, ohms and amperes and only two lead jacks. The simple operation of a function switch gives 9 more AC ranges. Also the Range Selector Switch is color coded for user convenience.

Not only does the Model 3400 give the user ease in range and function selection, it avoids the cumbersome selection of test lead inputs by using the same test leads for all ranges and functions.

Auto zero, auto polarity, automatic low battery indicator, and high/low power ohms are included in the Model 3400. Overload protection up to 600 Volts is provided for all ranges.

The Model 3400 has also been built with the user's safety in mind. Every effort has been made to design protection for the instrument and the user into the Model 3400.

In short the Model 3400, with its ease of operation, compact size, and versatility, is ideal for the hobbyist, technician, or engineer.

SPECIFICATIONS

DC Voltage

Ranges:	±0-200mV, 2V, 20V, 200V, 600V.
Accuracy: (+15°C to +35°C)	±(0.5% of reading ±1 digit) on 200mV, 2V, 20V, and 200V ranges; ±(0.75% of reading ±1 digit) on 600V range.
Input Impedance:	10 Megohms.
Common Mode Rejection 60Hz:	90dB minimum.
Normal Mode Rejection 60Hz:	55dB minimum.
Response Time:	1 Second maximum.
Maximum Input Voltage:	600V DC or DC plus AC peak.

AC Voltage

Ranges:	0-200mV, 2V, 20V, 200V, 600V
Accuracy: (+15°C to +35°C)	±(1% of reading ±2 digits) on 200mV, 2V, 20V, and 200V ranges; ±(1.5% of reading ±2 digits) on 600V range.
Frequency Response:	50Hz to 400Hz.
Input Impedance:	10 Megohms in parallel with 50pf.

SPECIFICATIONS (Continued)

Rectifier:	Average responding circuit calibrated to read RMS value of a pure sinewave.
Response Time:	5 Seconds maximum.
Maximum Input Voltage:	600V RMS or DC plus AC peak.

Direct Current

Ranges:	±0-2mA, 20mA, 200mA 2000mA.
Accuracy: (+15°C to +35°C)	±(1% of reading ±1 digit) on 2mA, 20mA, 200mA ranges; ±(1.5% of reading ±1 digit) on 2000mA range.
Voltage Burden:	200mV nominal.
Response Time:	1 Second maximum.
Maximum Input:	2 Amps (fused).

Alternating Current

Ranges:	0-2mA, 20mA, 200mA, 2000mA.
Accuracy: (+15°C to +35°C)	±(1.5% of reading ±2 digits) on 2mA, 20mA and 200mA ranges; ±(2% of reading ±2 digits) on 2000mA range.
Voltage Burden:	200mV, nominal.
Response Time:	5 Seconds maximum.
Maximum Input:	2 Amps (fused).

SPECIFICATIONS (Continued)

Resistance

Ranges: 0-200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ.

Accuracy: (+15 °C to +35 °C) ±(0.5% of reading ±1 digit) on 200Ω, 2kΩ, 20kΩ, 200kΩ, and 2MΩ ranges; ±(1% of reading ±1 digit) on 20MΩ range.

Response Time: 2 Seconds maximum except 20MΩ range 8 Seconds maximum.

Test Currents:

Range	Test Current	Open Circuit Voltage
200Ω	1mA	3V
2kΩ	0.8mA	3V
20kΩ	7.8μA	0.3V
200kΩ	29μA	1.0V
2MΩ	330nA	0.3V
20MΩ	300nA	3V

Maximum Input Voltage: 600V DC or DC plus AC peak (fuse protected).

Temperature Coefficients (0 °C to 15 °C and 35 °C to 50 °C)

DC Voltage: ±(0.01% of reading +0.05 digit) per °C

DC Current: ±(0.05% of reading +0.05 digit) per °C

AC Voltage: ±(0.05% of reading +0.05 digit) per °C

SPECIFICATIONS (Continued)

AC Current:	±(0.1% of reading +0.1 digit) per °C
Resistance:	±(0.1 of reading +0.1 digit) per °C

General

Operating Temperature:	+15°C to +35°C (0°C to 50°C with reduced accuracy).
Storage Temperature:	−40°C to +60°C.
Display:	3½ digit Liquid Crystal Display (LCD) with low battery indicator.
Size:	3"W x 5 11/32"L x 1 13/32"D (77.8mmW x 135.3mmL x 48.1mmD).
Weight:	10oz (0.28kg) with battery.
Battery:	9V Alkaline (MN 1604 or equal) 200 hrs minimum life.
Low Batt Indicator:	Automatically turned on when 50 hrs of battery life remaining.
Overrange Indicator:	Polarity and "1" are shown, last three digits blanked.
Supplies Included:	9V Alkaline Battery Test Leads Screw on Alligator Clips Wire Tilt Stand Spare Fuse (2A 250V) Spare Retaining Screw

PREPARATION FOR USE AND USER SERVICEABLE PARTS

The following procedure must be used to replace all operation serviceable parts in the Model 3400. Please read carefully.

1. Range Selector Switch to Off Position.
2. Remove black and red test leads from input plugs.
3. Unscrew and remove completely large retaining screw on back side of tester. See Fig. 1.
4. Using the hex end of the retaining screw removed in Step 3, loosen the test lead plugs found on the bottom front of the tester, by inserting the hex tool into the plug well and turning counter clockwise. See Fig. 1.
5. The test lead plugs must be completely loosened but can not be removed. See Fig. 1.
6. The case top and bottom can now be separated.
7. The 9V battery holder can be found below the liquid crystal display (LCD) in the top half of the tester case.
8. Insert the 9V battery into the battery clip and place in battery holder.
9. Should it ever be necessary to change the fuses in the Model 3400 follow Steps 1 thru 6 for case disassembly.
10. With the bottom of the case removed note that the fuses are exposed on the right side of the bottom printed circuit board.
11. To remove fuses place a thin rod, such as a probe tip or small screwdriver into the holes provided to dislodge fuses. These holes are

clearly marked on the bottom circuit board with the following statement: "INSERT PROBE TIP TO EXTRACT FUSE."

12. To replace fuse simply snap it back into fuse holder.
13. Mate top and bottom of case together, do not get battery wires caught in case.
14. Using same hex tool used in Steps 3 and 4 tighten test lead plugs.
15. Place retaining screw into backside of tester case and tighten until top and bottom are securely together.
16. An extra 2Amp fuse and retaining screw are supplied with your Model 3400. If additional fuses are needed and can not be obtained locally, they can be ordered from TRIPLETT CORP., 286 Harmon Rd., Bluffton, Ohio 45817.

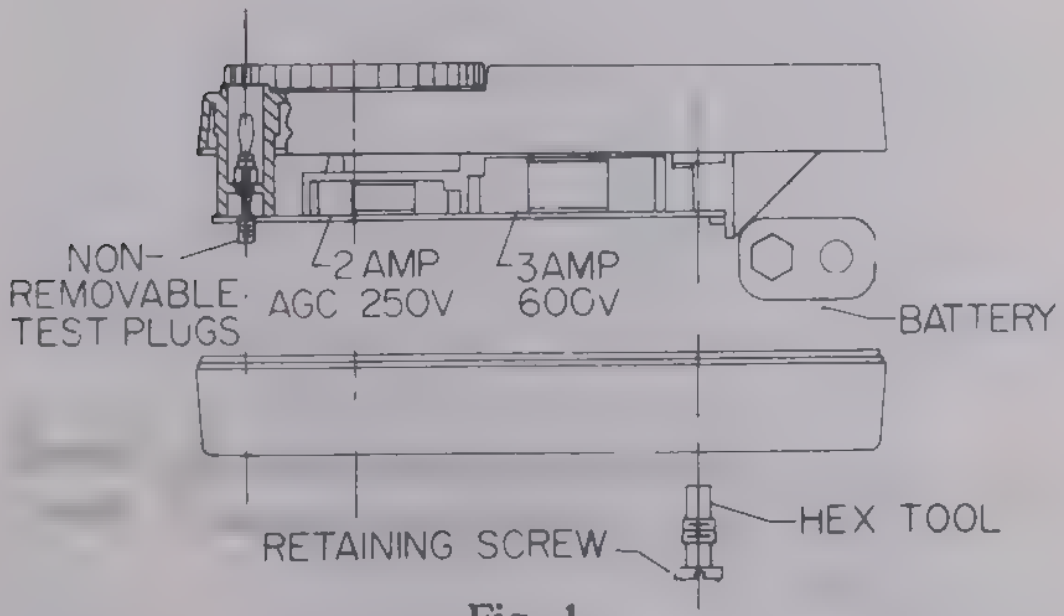

Fig. 1

GENERAL INSTRUCTIONS

1. Insert test leads into proper jacks before making measurements. Red "+" jack. Black "–" jack. See Fig. 2.

   Alligator clips can be removed from test leads by unscrewing them.

2. If the value of the voltage or current to be measured is unknown, always start with the highest range to avoid overloading the tester. The Range Selector Switch should not be rotated while under load.

3. The life and reliability of the tester will be greatly increased if test leads are removed from the circuit before changing ranges.

4. All "Over Ranges" are displayed as a blank display except for a 1 and the polarity of the overrange.

5. The low battery indicator will automatically turn on when battery voltage drops to 7 volts. The battery should be changed as soon as possible but the unit will operate for at least 50 more hours.

LCD.

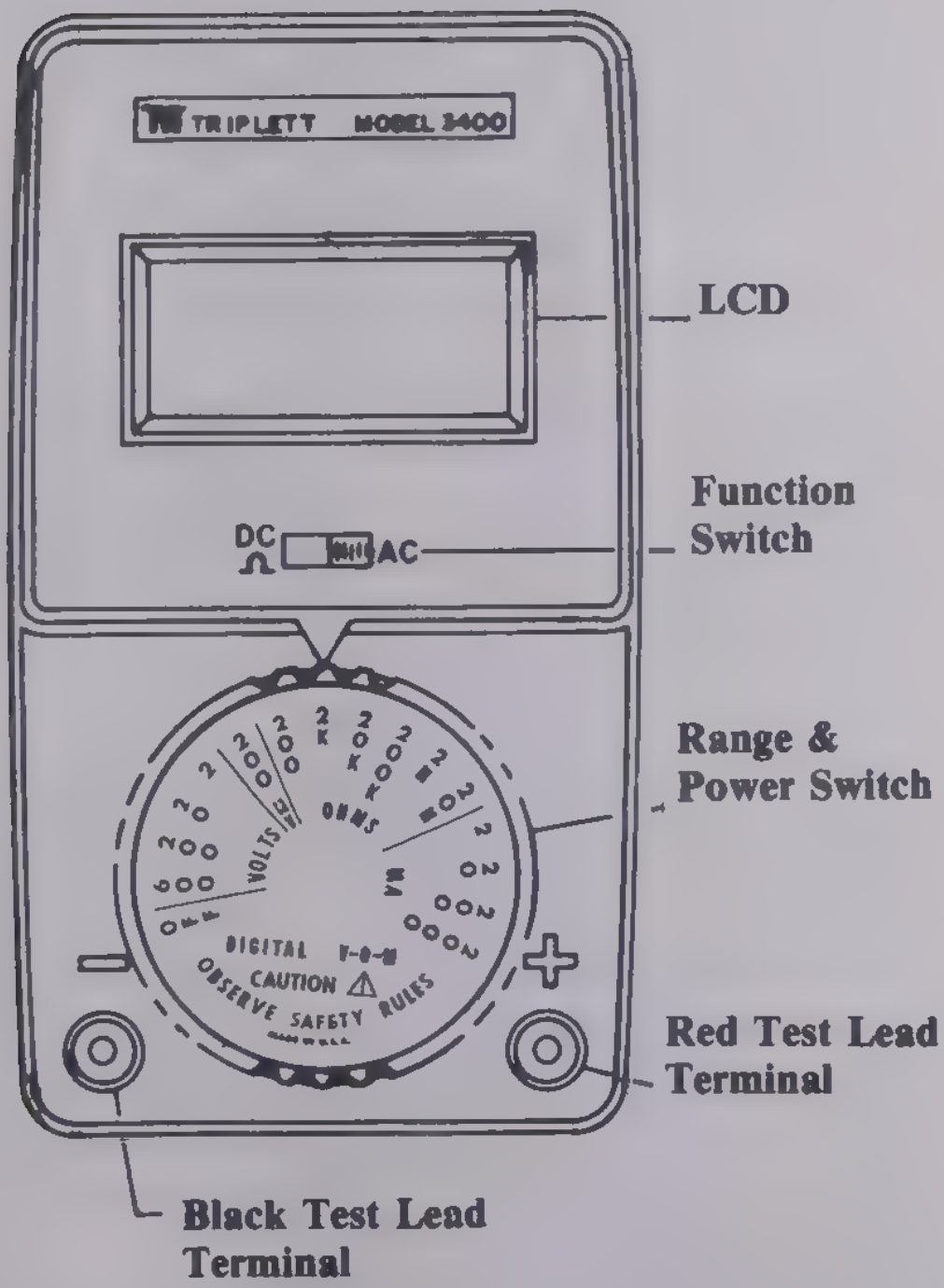
TRIPLETT MODEL 3400
LCD
DC
AC
Function
Switch
Range &
Power Switch
Red Test Lead
Terminal
Black Test Lead
Terminal

Fig. 2

SAFETY WARNING

This tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when lack of caution or poor safety practices are used.

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Voltages and currents within the capability of this test equipment can be hazardous. Follow the instructions in this manual for every measurement. Read and understand the general instructions before attempting to use this tester. Do not exceed the limits of the tester.

Safety Check

Double check the switch setting, and lead connections before making measurements. Are you following all of the instructions?

Disconnect the tester or turn off the power before changing switch positions.

Do not connect to circuits with voltage present when switch is in any ohms or current position.

When replacing fuses use only specified type fuses and insert in correct fuse holder.

Don't Touch

Don't touch exposed wiring, connections or other "live" parts of an electrical circuit. If in doubt, check the circuit first for voltage before touching it.

Turn off the power to a circuit before connecting test probes to it. Be sure there is no voltage present before you touch the circuit.

Do not use cracked or broken test leads.

High Voltage Is Dangerous

Always start with the power off. Be sure there is no voltage present before making connections to the circuit.

Don't touch the tester, its test leads, or any part of the circuit while it is on.

Before disconnecting the tester, turn the circuit off and wait for the meter to return to "zero."

Distribution Circuits Pack A Punch

In high energy circuits such as distribution transformers and bus bars, dangerous arcs of explosive nature can occur if the circuit is shorted. If the tester is connected across a high energy circuit when set to a low resistance range, a current range, or any other low impedance range, the circuit is virtually shorted.

Special equipment designed for use with these circuits is available. Contact a qualified person for assistance before attempting to make measurements on any high energy circuit.

SAFETY IS NO ACCIDENT

Fuses in this unit must be replaced with only specified types, as given in the replacement parts list. An extra 2Amp fuse is supplied with this tester for your convenience.

OPERATING INSTRUCTIONS

Measuring AC Or DC Volts

1. Select desired function AC or DC with Function Switch.
2. Select correct voltage range on Range Selector Switch or if voltage is unknown select highest range.
3. Observing all safety precautions, connect test leads across voltage to be measured. The auto polarity feature of the Model 3400 will sense the polarity of a DC voltage being measured and will display it on the Liquid Crystal Display. See Fig. 2.
4. If a number less than 199 appears on the LCD a lower voltage range may be desired to increase resolution.
5. If voltage range selected is too low an overrange condition will appear on the LCD.

Measuring AC Or DC Current

1. Select desired function AC or DC with Function Switch.
2. If value of current is unknown go to highest range 2000mA.
3. Observing all safety precautions, connect test leads in series with circuit to be tested.
4. If a number less than 199 appears on LCD remove test leads and change selector to lowest range.

Measuring Resistance

1. Set Function Switch to DC/Ω position and select correct range on the Range Selector Switch.

2. The range selected may depend on how the resistance measurement is being made. This tester has both "high and low" power ohms. The low power ohm (green numbers in Ω range) will not turn on semi-conductor diodes and thus resistance measurements can be made in circuit.

   The black numbers in the Ω range will turn on semi conductor diode and should not be used for in circuit test. The high power Ω can be used for testing solid state devices as shown in Application Notes of this manual.
3. If resistance measurement is to be made in circuit make certain that the power is removed from the circuit.
4. For in circuit test one of the three (3) low power resistance ranges should be used.
5. Place test leads across resistance to be measured and note readings on LCD.
6. If unknown resistance is too large an overrange condition will be displayed.
7. If reading is 199 or less the next lower resistance range should be used.
8. To measure resistance of component out of circuit, place test leads across unknown resistance and select proper range. For an out of circuit measurement any range can be used.

   Note that on the 200Ω range a small resistance is displayed even with test leads shorted. This is caused by the resistance of the test leads themselves and should be subtracted from total reading for more precise measurement.

THEORY OF OPERATION

The heart of the Model 3400 is an analog to digital converter referenced to 100mV for all voltage measurements. The analog to digital, (A/D) converter uses dual slope technique to provide long term stability and accuracy. See block diagram Fig. 3.

The voltage inputs are applied across a 10 megohm attenuator. In the DC mode the output of the attenuator is coupled directly to the input of the A/D converter.

The voltage input to the A/D converter is compared to a stable reference of 100mV. The results of this comparison are displayed in the Liquid Crystal Display.

AC voltages are taken from the input attenuator and processed by an AC converter. This converter consists of two parts: (1) Buffer Amplifier and (2) Precision Rectifier.

The Buffer Amplifier is a unity gain Operational Amplifier, whose input has been designed to provide high input impedance.

The Precision Rectifier converts the AC input signal to DC and couples it to the A/D converter.

Except for the input circuit, current measurements are identical to voltage measurements. The input signal is placed across a small value shunting resistor. This shunt, which depends on the range selected converts the unknown current to a voltage which is 200mV or less. This voltage is coupled directly to the A/D converter, or in the case of AC to the AC converter and then to the A/D converter.

The ohms circuit in the Model 3400 uses a ratioing technique. A resistance of unknown value is placed in series with a standard resistor, and the voltage drop across each resistor is compared. The result of this comparison is displayed on the LCD.

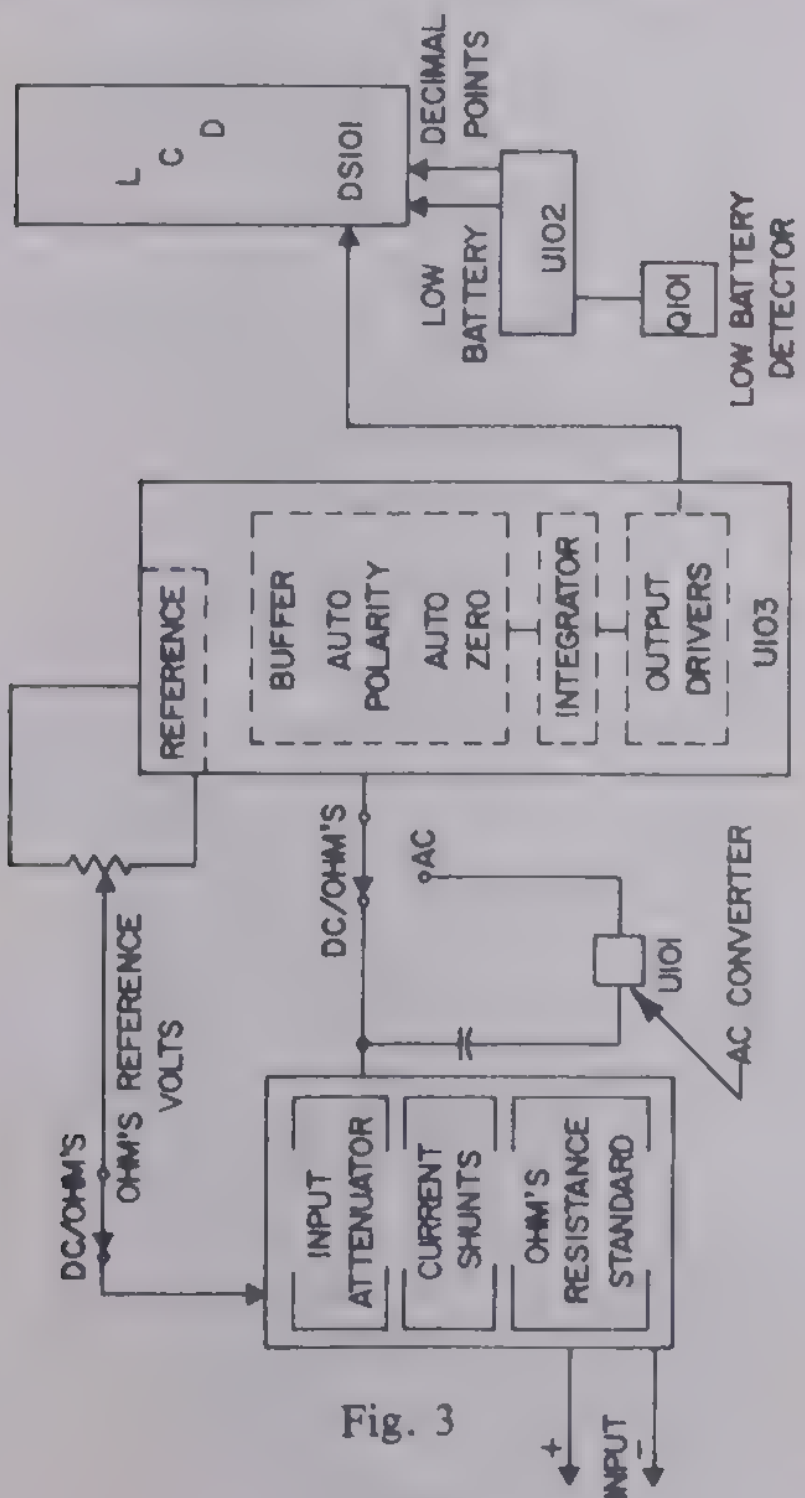


Fig. 3

APPLICATION NOTES

The following application notes are added to make your Triplett tester even more useful. These notes by no means cover all the uses for your Model 3400, but it is designed to help you utilize your tester to greater advantage.

Your Model 3400 is an average responding to pure sine wave RMS calibrated tester, but you may desire to use it to measure other types of voltage wave forms.

In the Table 1 below correction multipliers are given to make measurements of various types of wave forms using Model 3400.

TABLE 1

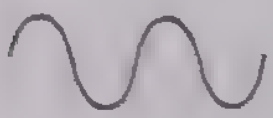
Wave Form	Type of Reading Reserved	Multiplier
Sine: 	RMS	1
	Average	.9
	Peak	1.4
	Peak to Peak	2.8
Full Wave	RMS	1
Full Wave-Rectified Sine:	Average	.9
	Peak	1.4
	Peak to Peak	1.4
Half Wave	RMS	1.4
Half Wave-Rectified Sine:	Average	.9
	Peak	2.8
	Peak to Peak	2.8

TABLE 1 (Continued)

Wave Form	Type of Reading Reserved	Multiplier
Square Wave Square: 	RMS	.9
	Average	.9
	Peak	.9
	Peak to Peak	1.8
Half Wave Rectified Square: 	RMS	1.27
	Average	.9
	Peak	1.8
	Peak to Peak	1.8
Saw Tooth Triangle or Sawtooth 	RMS	1.04
	Average	.9
	Peak	1.8
	Peak to Peak	3.6
Full Wave Triangle Full Wave-Rectified Triangle or Sawtooth 	RMS	1.04
	Average	.9
	Peak	1.8
	Peak to Peak	1.8
Half Wave Triangle Half Wave-Rectified Triangle or Sawtooth 	RMS	1.47
	Average	.9
	Peak	1.8
	Peak to Peak	1.8

Table 2 gives a variety of uses for the high power scales on the Model 3400 Digital V-O-M. Many solid state devices can be given operational test if the following procedure is used:

1. Identify type of device to be tested and locate this device on Table 2.
2. Select correct high power Ω's range from Range Column of Table 2.
3. Connect test leads from Model 3400 to appropriate points on the semi conductor as shown in the lead connection column. Note - The + should be the red test lead and the − the black test lead. NC means no connection.

If the device being tested gives the results shown in the Results/Comments Column the device can be assumed to be functional operational.

TABLE 2

Red Lead = (+)
Black Lead = (−)
NC No Connection

Device	Range	Lead Conn 1	2	3	Results/ Comments
	2k	+	−	NC	Overrange
Diode		−	+	NC	Si .8 Ge .4

TABLE 2 (Continued)

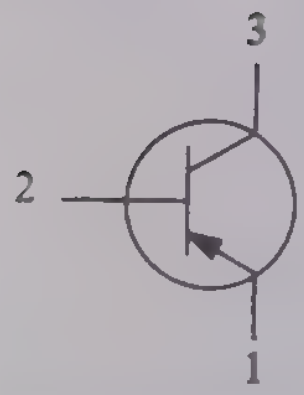
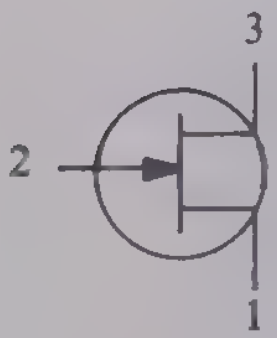
Device	Range	Lead Conn 1	2	3	Results/ Comments
	2k	+	−	NC	Si 1.0 Ge .7
		−	+	NC	Overrange
		NC	+	−	Overrange
		NC	−	+	Si 1.0 Ge .7
Bi Polar PNP		+	NC	−	Overrange
		−	NC	+	Overrange
	2k	+	−	NC	Overrange
		−	+	NC	Si 1.0 Ge .7
		NC	+	−	Si 1.0 Ge .7
		NC	−	+	Overrange
		+	NC	−	Overrange
Bi Polar NPN		−	NC	+	Overrange

TABLE 2 (Continued)

Device	Range	Lead Conn 1	2	3	Results/ Comments
	200k	+	−	NC	Overrange
		−	+	NC	1.0
		NC	+	−	1.0
		NC	−	+	Overrange
N Channel		+	NC	−	Variable Reading*
		−	NC	+	Variable Reading*
	200k	+	−	NC	≈1.0
		−	+	NC	Overrange
		NC	+	−	Overrange
		NC	−	+	≈1.0
P Channel		+	NC	−	Variable Reading*
		−	NC	+	Variable Reading*

TABLE 2 (Continued)

Device	Range	Lead Conn 1	2	3	Results/ Comments
	200k	+	−	+	Overrange
		−	+	+	≈ .6 while 3 connected to (+)

*This value depends on device tested.

LIMITED WARRANTY

The Triplett Corporation warrants instruments and test equipment manufactured by it to be free from defective material or factory workmanship and agrees to repair or replace such products which, under normal use and service, disclose the defect to be the fault of our manufacturing, with no charge for parts and service. If we are unable to repair or replace the product, we will make a refund of the purchase price. Consult the Instruction Manual for instructions regarding the proper use and servicing of instruments and test equipment. Our obligation under this warranty is limited to repairing, replacing or making refund of any instrument or test equipment which proves to be defective within one year from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence or accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries, not of our manufacture used with this product are not covered by this warranty.

To register a claim under the provisions of this warranty, return the instrument or test equipment to Triplett Corporation, Bluffton, Ohio 45817, transportation prepaid. Upon our inspection of the product, we will advise you as to the disposition of your claim.

ALL WARRANTIES IMPLIED BY LAW ARE HEREBY LIMITED TO A PERIOD OF ONE YEAR, AND THE PROVISIONS OF THE WARRANTY ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES EXPRESSED OR IMPLIED.

The purchaser agrees to assume all liability for any damages and bodily injury which may result from the use or misuse of the product by the purchaser, his employees, or others, and the remedies provided for in this warranty are expressly in lieu of any other liability Triplett Corporation may have, including incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. No representative of Triplett Corporation or any other person is authorized to extend the liability of Triplett Corporation in connection with the sale of its products beyond the terms hereof.

Triplett Corporation reserves the right to discontinue models at any time, or change specifications, price or design, without notice and without incurring any obligation.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Triplett Corporation
Bluffton, Ohio 45817

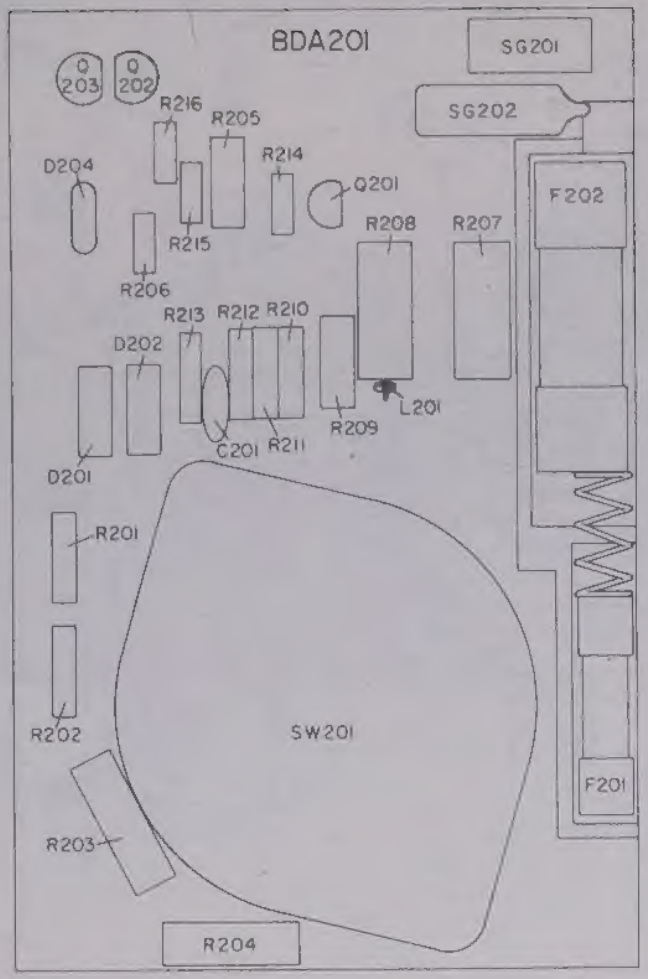
Printed in USA 84-309

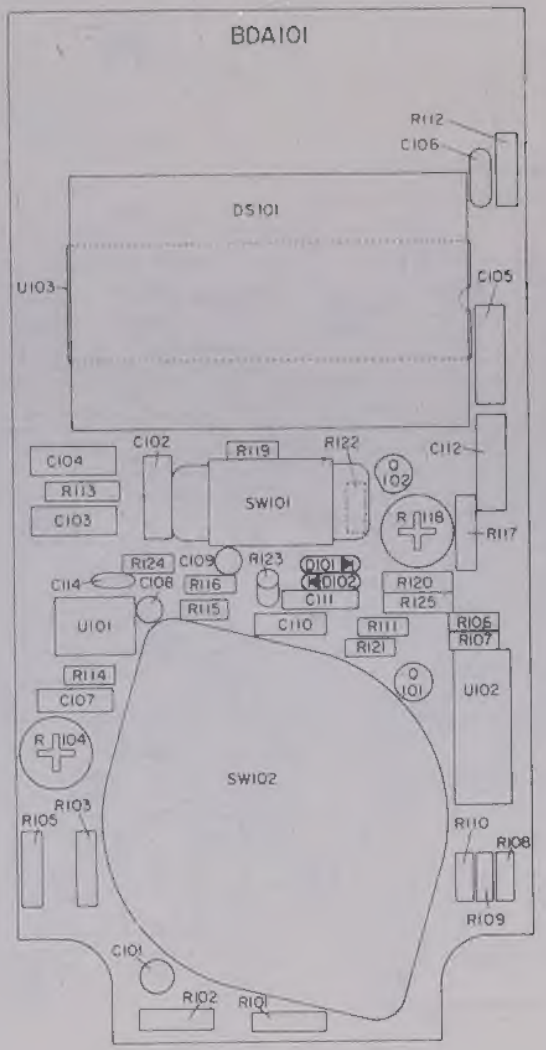
REPLACEABLE PARTS MODEL 3400

Ref. No.	Description	Part No.
C101	Capacitor 10μF	43-414
C102, 105	Capacitor .1μF	43-471
C103, 112	Capacitor .47μF	43-472
C104	Capacitor .068μF	43-473
C107	Capacitor .022μF	43-474
C108, C109	Capacitor 2.2μF	43-463
C110, C111	Capacitor .1μF	43-469
D101, 102, 204	Diode 1N4148	127-114
D201, D202	Diode MR500	127-130
DS101	Readout Liquid Crystal	127-78
F201	Fuse, 3 Amp	3207-66
F202	Fuse, 2 Amp	3207-18
Q101	Transistor 2N5172	127-73
Q102, 202, 203	Transistor E201	127-124
Q201	Transistor 2N5087	127-38
R101	Resistor 9k ⅛ W 1%	15K-9001TA3
R102	Resistor 3.5k ⅛W 1%	15K-3501TA3
R104	Resistor Variable 250 Ohm	16-307
R117	Resistor 3.65k ⅛ W 1%	15K-3651TA3
R118	Resistor Variable 1k	16-306

Ref. No.	Description	Part No.
R201	Resistor 90 Ohm ⅛ W 1%	15K-900FTA3
R202	Resistor 9 Ohm ⅛ W 1%	15K-900HTA3
R203	Resistor .9 Ohm 3 W W.W. 1%	15-5754
R204	Resistor .1 Ohm 3 W W.W. 1%	15-5755
R207, R208	Resistor 4.5M ½ W ¼%	15-5750
R209	Resistor 900k ⅛ W ¼%	15-5717
R210	Resistor 90k ⅛ W ¼%	15-5716
R211	Resistor 9k ⅛ W ¼%	15-5715
R212	Resistor 1K ⅛ W ¼%	15-5751
R213	Resistor 100 Ohm ⅛ W ¼%	15-5752
SG201	Spark Gap	12388
SG202	Spark Gap Neon Lamp	67-98
SW101	Switch Slide	22-717
U101	Integrated Circuit LM358	126-77

Ref. No.	Description	Part No.
U102	Integrated Circuit 4070B	126-76
U103	Integrated Circuit 1CL7106	126-75
	Bracket, Battery Retainer	65-845
	Case Bottom Assembly	10-2950
	Case Top Assembly	10-2948
	Contact, Fuse (Large)	46-193
	Contact Fuse, (Small)	46-194
	Fuse Holder, Molded	3207-62
	Instruction Manual	84-309
	Knob Assembly	34-183
	Replacement Test Lead Package	79-442
	Schematic	12-553
	Screw, Retaining	24-834
	Service Manual	84-313
	Spring Contact (Fuse)	42-301
	Stand, Wire Tilt	255-97


BDA201
SG201
SG202
Q203
Q202
R216
R205
R214
D204
Q201
F202
R215
R208
R207
R206
R213
R212
R210
D202
L201
C201
R211
R209
D201
R201
R202
SW201
F201
R203
R204


BDA101
R112
C106
DS101
U103
C105
C104
C102
R119
R122
C112
Q102
R113
SW101
R118
C103
R117
R124
C109
R123
D101
C114
C108
R116
D102
R120
R125
C111
R115
U101
C110
R111
R106
R121
R107
R114
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U102
C107
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SW102
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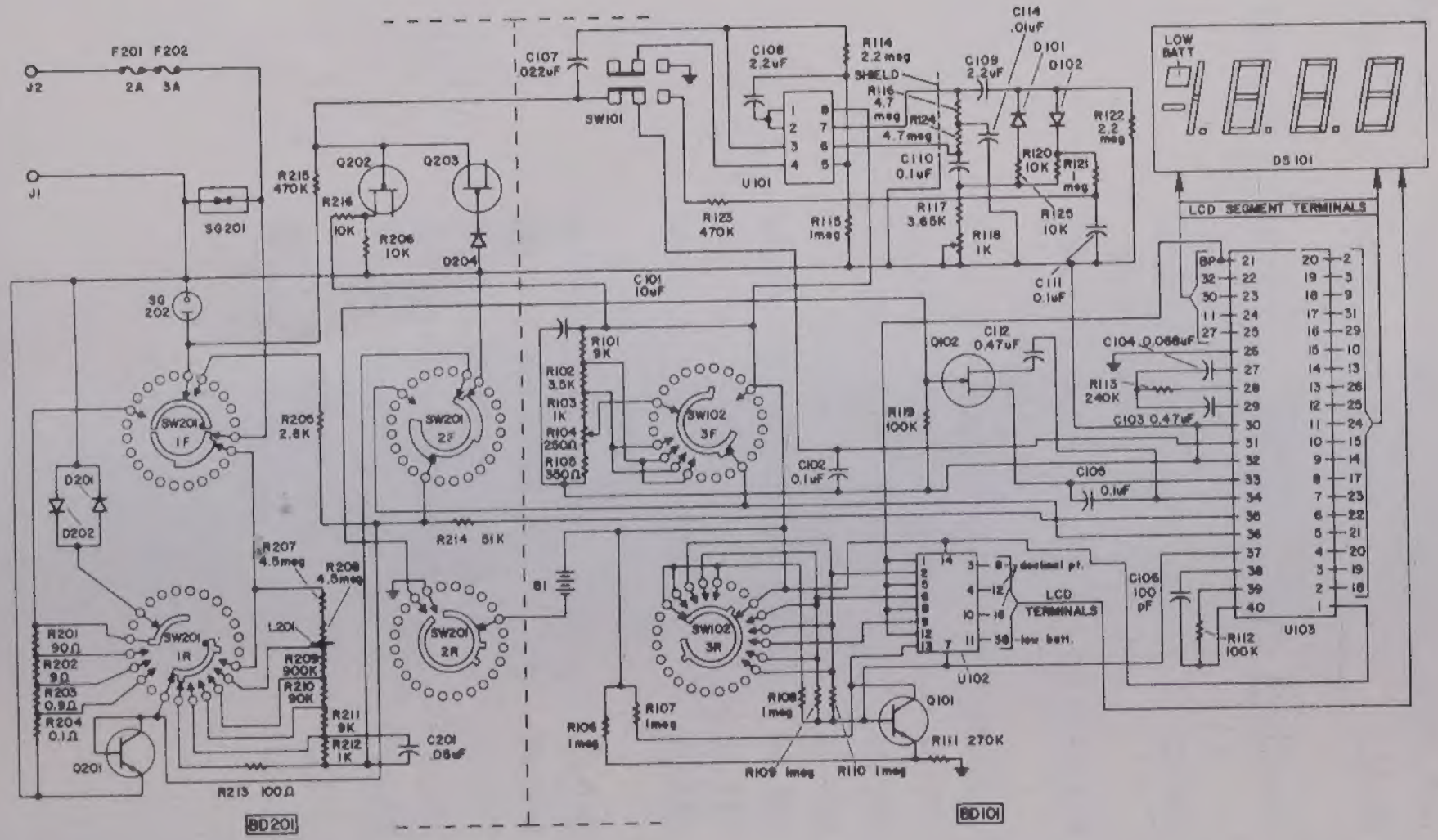
R105
R110
R108
R109
C101
R102
R101


F201 F202
J2
2A 3A
J1
SG201
R215 470K
Q202
Q203
R216 10K
R206 10K
D204
SG 202
C107 .022uF
SW101
C108 2.2uF
R114 2.2 meg
SHIELD
C109 2.2uF
C114 .01uF
D101
D102
R116 4.7 meg
R124 4.7meg
R122 2.2 meg
R120 10K
R121 1 meg
U101
R123 470K
R115 1meg
C110 0.1uF
R117 3.65K
R118 1K
R125 10K
C111 0.1uF
C101 10uF
LOW BATT
DS101
LCD SEGMENT TERMINALS
R101 9K
R102 3.5K
R103 1K
R104 250Ω
R105 350Ω
SW201 1F
SW201 2F
SW102 3F
Q102
C112 0.47uF
C104 0.068uF
R113 240K
C103 0.47uF
R119 100K
C102 0.1uF
C105 0.1uF
R205 2.8K
D201
D202
R214 51K
R207 4.5meg
R208 4.5meg
B1
SW201 1R
SW201 2R
SW102 3R
L201
R201 90Ω
R202 9Ω
R203 0.9Ω
R204 0.1Ω
R209 900K
R210 90K
R211 9K
R212 1K
C201 .05uF
Q201
R213 100Ω
R106 1meg
R107 1meg
R108 1meg
R109 1meg
R110 1meg
Q101
R111 270K
U102
decimal pt.
LCD TERMINALS
low batt.
C106 100 pF
R112 100K
U103
BP
8D201
8D101

MP MASTER

MA26089

Triplett Corporation Bluffton, Ohio 45817